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TREATISE

ON THE

USE AND MANAGEMENT

OF A

RAZOR.

(Price *One. Shilling.*)

TREATISE

ON THE

USE AND MANAGEMENT

OF A

RAZOR,

WITH

PRACTICAL DIRECTIONS RELATIVE TO ITS APPENDAGES;

ALSO A DESCRIPTION OF THE ADVANTAGES ATTENDING THE FORM OF THE

CONVEX PENKNIVES.

The FOURTH EDITION,
With Additions and Alterations.

TO WHICH ARE NOW FIRST ADDED,

INSTRUCTIONS AT LARGE

FOR

MAKING AND REPAIRING

PENS.

By J. H. SAVIGNY,
Razor *and* Surgeon's Instrument Maker.

LONDON:
PRINTED BY T. BENSLEY, FOR THE AUTHOR;
AND SOLD BY HIM, AT HIS SHOP IN PALL-MALL,

MDCCLXXXVI.

PREFACE.

LITTLE apology, I imagine, will be thought neceſſary for the defects which, moſt likely, will be diſcovered in the following pages; for, as they may very naturally be expected, ſo I judge they will readily be excuſed, in the man, who writes more from the nature of his buſineſs than that of his education: And I humbly hope that thoſe, for whom this Treatiſe is principally intended, will not take offence at my attempting to give inſtructions on ſo trifling a ſubject; it being one of thoſe ſpecies of knowledge, how-

ever convenient, of which it is no dis-qualification in a gentleman to be ignorant: more eſpecially, as I reſolve not to miſlead any one, who may afford it a peruſal, by ſuppoſed advantages, in any particular method, which neither reaſon or experience will juſtify.

Thus the glare of abſtruſe conjectures and ſtrained concluſions, concerning the effects of Nature, which are ſometimes received as indications of a deep diſcernment, will ſeem wanting: This, however, I can the more readily yield to, being much leſs ſolicitous to appear wiſer than I am, than as honeſt as I ſhould; and I ſhall be leſs diſſatisfied in being found to want ſome of that knowledge which the undertaking requires, than in being ſuſpected of diſingenuity in what I advance.

I choſe

I chose not to give my book any other title than what it might justly claim; though it is easy to foresee that *that*, under which it makes its appearance, will not prejudice any one in favour of it, or excite any great degree of curiosity: This last consideration, indeed, I regarded as a favourable circumstance, knowing how dangerous it must be for a writer to stimulate a curiosity which he has not ability to gratify. The subject, doubtless, is not of an exalted nature; yet, when I reflect on the many considerations it might produce, I conclude that its mediocrity will appear more from my manner of treating it, than in the want of importance in the subject itself.

Very ingenious men, and those of learning too, have not blushed to own that the properties of steel, and the al-

teration it undergoes by fire and water, are ſubjects very difficult to comprend; and concerning which few will pretend to an entire certainty: But, as the performance of all cutting inſtruments depends in a great meaſure on the effects produced by tempering, it cannot be doubted but this theme, under the direction of a more able pen, would be capable of great extenſion.

I am tempted here to give ſome obſervations, which have ariſen in my experimental purſuits on this ſubject.—Men, who thought themſelves well informed concerning the myſterious operation of tempering ſteel, were accuſtomed boldly to pronounce, that the alteration it underwent by the proceſs aroſe from contraction of the particles, and that their being drawn into a cloſer contact occaſioned the increaſed degree

of

of hardneſs. There was ſomething ſo ſpecious in the argument, that I eaſily gave way to it, and for ſome time reſted my opinion on this hypotheſis: Being deſirous, however, of further conviction, I reſolved to try an experiment, to aſcertain the fact: to this end, I procured a thin plate of iron; and having forged ſix ſmall bars of ſteel, each exactly four inches long, I fitted them with great accuracy into the edge of the iron plate, which I indented for that purpoſe, and adjuſted them very nicely within the limit I had filed; thus I conceived that the ſmalleſt degree of contraction, each would experience in hardening, muſt be minutely aſcertainable, from its fitting looſer than before. I proceeded to give the uſual degree of heat to one of my bars; and, having quenched it, applied it to the iron plate, and found that it would by no means enter into the di-

menſions where before it fitted: This, to my great ſurpriſe, convinced me of an increaſe, and not a diminution of volume. I repeated the ſame experiment with others, and found the ſame effect; ſo that I was fully convinced that tempering fixed an increaſe of magnitude in ſteel, and that I was no longer to conſider contraction as the cauſe of hardneſs.

I was afterwards deſirous of knowing if a ſtill greater degree of heat, than that which is uſually given in tempering cutting inſtruments, would produce a different effect: And in this view I heated ſome bars white-hot; and, having immerſed them, found they had loſt both in length and breadth: I repeated this experiment ſeveral times, and found its effects invariable; and I believe I may ventnre the following opinion reſpecting the phenomenon.

In

In the converſion of iron into ſteel, an extraneous body is introduced, which we may ſuppoſe to be of a nature partaking both of ſulphur and ſalts: We conceive it ſulphurous from the blue colour it acquires by heat; and its aptneſs to fuſibility conveys an idea of its participating of ſaline properties: We may, however, imagine that both theſe bodies partake of a nature different from what is common to them, when not incorporated with the metal; otherwiſe, they could ſcarcely be ſuſpected as the means of fixing the great degree of denſity, occaſioned by the action of tempering.

The heterogeneous parts (whatever their nature be) become fluid, and diſperſed over the body of ſteel, by a certain degree of agitation from the fire; and, uniting themſelves with the more ſolid,

or

or metallic body, fill up all its interſtices; and, if immerſed at this critical period, become fixed and united with the ſteel, ſo as to leave it much leſs porous than it was before tempering: hence we may conceive, that the ſame means which enlarges its dimenſions, may alſo increaſe its hardneſs. From this knowledge, the intelligent artiſt judges, after breaking off a ſmall part from the tempered inſtrument (uſually left for that purpoſe) if the fire has done the buſineſs properly, and thence he proceeds to finiſh or condemn the work.

Although I am convinced that the hardneſs of ſteel is much increaſed by this proceſs, yet I am not of opinion it is owing to that property alone, by which it acquires the power of cutting; for I conceive that the union of particles greatly

greatly contribute; and, in ſupport of this opinion, we find, that a file with very minute, and conſequently very cloſe teeth, will cut upon a ſurface, when one that has very large and extended teeth, though of the ſame degree of hardneſs, can have no hold.

With reſpect to the bars of ſteel which were overheated, I found, indeed, that they were very hard and reſiſting to the file; but I found too, that they were much more fragile than the others; and upon examining their pores, this was no longer ſurpriſing, for it appeared, that the part of the body, which was not directly metallic, was deſtroyed by the heat, and had left the metallic parts greatly diſunited, and ſeparated from each other.

But

But I forget I am writing a Preface to a trifling work, and have engaged in a ſubject that would fill a folio: But to return: Thoſe who are acquainted with the great difficulties, which occur in inquires regarding the nature and properties of ſteel, will, I am perſuaded, perceive a very great propriety in my having ventured no further on the ſubject; and I believe I may ſafely pronounce, that the man who is able to give ſufficient reaſons, why the edge of a razor, which to all appearance is very well formed, ſhould not cut (which is ſometimes the caſe) has made no ſmall diſcovery. I am indeed convinced, that method and management are eſſentially neceſſary to a razor's cutting, or I ſhould be without an excuſe for troubling the public on this ſubject; but when theſe are well attended to, in the direction of a razor which appears

to

to have every property it ought to poſſeſs, I am very ready to own, that I find a difficulty for aſſigning a reaſon for its not performing.

I embrace this opportunity of addreſſing the public on a ſubject, in which thoſe who make razors, and thoſe who make uſe of them, are equally concerned; the profits, juſtly appertaining to the real manufacturers, have long been invaded by various deſcriptions of men; none of whom can have the moſt diſtant pretence to any analogy in their profeſſions, which can afford information reſpecting the phyſical properties of razors.

The judicious part of mankind have ever been convinced of the great preciſion neceſſary in giving to razors their requiſite properties; and that a man poſ-

ſeſſed

ſeſſed of the greateſt art in the myſtery of tempering ſteel, with every caution and exactneſs he can apply in the proceſs, is not always ſure of his aim; yet it is nothing new or uncommon, in this age, for a man who never tempered, or even ſaw a razor tempered, during his whole life, to come forward in the public prints, and proclaim to the world that he poſſeſſes an infallible ſecret, reſpecting the method of communicating hardneſs to ſteel: Thus it happens that men of any profeſſions, or indeed men of no profeſſions at all, ſuch as ſcarce can read, and ſuch as cannot write, often engage in the extraordinary tranſition; and though not poſſeſſed of the ſmalleſt degree of knowledge reſpecting the treatment of *any* metal, aſſume a judgment in *that*, which of all others is moſt myſterious, and difficult to be underſtood.

It

It would not now appear wonderful, if a man emerging from a livery, or leaving the ſervice of a family, wherein he had been employed as hair-dreſſer, butler, cook, groom, or porter, ſhould take a ſhop in any part of London, place a few waſhballs in his window, procure a ſmall aſſortment of razors from ſome hardware-ſhop, and then announce to the public, that he vends RAZORS MADE ON PHILOSOPHIC PRINCIPLES, though, notwithſtanding, all the boaſted difference from thoſe in general uſe evidently conſiſted in their conſtruction; a circumſtance which our new philoſopher might omit to recollect, as relating more to mechaniſm than philoſophy.

Another might addreſs the public in an elegant and grammatical ſtile, and ſay he ſold POLISHED RAZORS, WHERE

THE GREATEST CARE HAS BEEN TAKEN OF THEIR TEMPERATURE, &c. Perhaps the term *where* could not be very easily understood, and readers might be induced to imagine it some how or other was connected with the word polished; but I rather incline to think, the learned advertiser would mean it to express *situation*; which *situation* being perhaps at no greater distance than *Sheffield*, from the *metropolis*, might, doubtless, afford the author very frequent opportunities of witnessing the care taken in their TEMPERATURE; and of giving such directions, as *his study and knowledge of the subject* might be supposed to enable him to do.

I could not resist this opportunity of exposing the unjustifiable innovations which have been made on the real manufacturers of razors. In their names, and

and in juſtice to our common cauſe, I beg reſpectfully to ſubmit an appeal to the public, whether men, who have ſerved regular apprenticeſhips to the buſineſs of razor-making; whoſe attentions have been exerted in proportion to the difficulties of the purſuit; and who have ſpared neither time, labour, nor expence, in proſecuting experiments relative to the myſterious operation of tempering ſteel, have not great reaſon to think themſelves aggrieved by the unabaſhed pretenders, who are daily ſtarting up in the public papers, under ſome burleſque deſcription of new attained excellence, equally repugnant to common ſenſe and common probity.

I beg the reader's pardon for this digreſſion; and will now conclude my preface, by obſerving, that if the inſtructions neceſſary to be given, reſpecting

the management of razors, are not attended to, thoſe inſtruments may often be unjuſtly diſapproved; it being impoſſible to make any cutting inſtrument effect its purpoſe, unleſs regard is paid to that particular method which can beſt empower it to act: this I ſhall endeavour to demonſtrate, by ſome familiar inſtances, in the following pages; for the preſent I ſhall only obſerve, that though, from ſecret cauſes in nature, it may, ſometimes happen, that the moſt circumſpect workman may miſs his aim in the perfecting a razor; yet, notwithſtanding, the too common failure of theſe inſtruments is more likely to be accounted for in an undue application, than in any inability or remiſſneſs in the makers. If this be credited, I truſt it will ſuggeſt a ſufficient excuſe, for an attempt of this kind; as, while the inconvenience appeared removable, there

was

was ſufficient encouragement for endeavouring to remove it.

A gentleman, whoſe profeſſion naturally afforded the beſt information on the buſineſs of pen-making, once favoured me with a manuſcript on the ſubject; and added, that if I ever publiſhed any account of the convex penknives, he thought it would be no improper additament. It has been read and much approved by ſome eminent profeſſors of the pen, and I believe it will be found to contain more copious inſtructions than were ever yet given on the ſubject; on which account I entertain ſome hope of its being favourably received by the public, to whoſe inſpection it is now reſpectfully ſubmitted.

TREATISE, &c.

CHAP. I.

Of Chusing Razors.

THE choice of razors, I imagine, is a circumstance of less concern to a gentleman, than the choice of the person of whom he means to buy them; and whoever fixes well with regard to the latter, need give himself very little trouble about the other; for if the vender is at the same time the

manufacturer, and a man the leaſt deſirous of mantaining any degree of reputation, he will not, unleſs his mental faculties be very weak, recommend any razor which he has reaſon to think will not ſucceed.

Thoſe who deal fairly in this buſineſs will never refuſe changing razors that are not approved; and indeed this is the only method whereby there is any certainty of giving ſatisfaction; for, to ſpeak the truth, it has been found, that what are called *good* razors are only occaſionally ſo. The merit of theſe inſtruments being of a *particular*, not a *general* nature, require them to be adapted to certain faces, to demonſtrate their excellence: it is not eaſy to aſcertain, with much preciſion, to what cauſe this is owing; but it ſeems pretty probable, that the lax, or compacted condition of the beard,

may

may require an edge of a moderate or higher degree of temper.

It appears, from what has been ſaid, that the choice of a razor may quite as well be left to the makers, as determined by the purchaſer; however, it ſometimes happens, that, excluſive of its goodneſs, the weight, the poiſe, &c. of a razor, are circumſtances which ſeem to claim acquaintance with particular hands; and, with regard to theſe, every one will do well to ſuit himſelf.

I have lately ventured, notwithſtanding the long eſtabliſhed notion—that weight is a very requiſite property in a razor, to recommend thoſe which were deficient in this reſpect; and I will embrace this opportunity to offer the reaſons which influenced my judgment on the ſubject.

It

It does not appear, upon conſidering by what means a razor acts, that its ponderoſity can aſſiſt in the operation; the performance depending upon the condition of the edge, abſtractedly from its weight; momentum can aſſiſt only where force is requiſite: thus, in dividing a tough piece of wood, we find that the edge of a knife, however keen, cannot make its way; it becomes neceſſary, therefore, to uſe ſome inſtrument of more weight, which, being applied by an accelerated action of the arm, becomes equal to the taſk. The weight of all cutting inſtruments ſhould be adapted according to the nature of their acting; and if the beard required to be hewn, or chopped off, doubtleſs, a hatchet, with a ſharp edge, would anſwer the purpoſe better than a razor; on the contrary, if the beard can be eraſed by an unforced inciſion, which is certainly the caſe, an

inſtrument

inſtrument of no conſiderable weight, with a proper edge, will always deſerve the preference; for the hand, having nothing to overcome in point of weight, performs with more exactneſs and eaſe, than it poſſibly can, when feeling the oppreſſion of weight in the inſtrument it has to manage.

While I am ſpeaking on the choice of razors, I take the opportunity to recommend thoſe made of ſteel, that has undergone the proceſs of fuſion and refinement, in preference to all others; they being much better united in their ſubſtance, much leſs disfigured with foulneſs and droſſy veins, and always (when wrought with the extraordinary care which this ſteel particularly requires) free from thoſe viſible pores, which cannot fail to affect the delicacy of the edge, and which it is very rare indeed to find any other ſteel free from.

CHAP.

CHAP. II.

Of Sope.

THERE are ſeveral ſorts of ſope at preſent in requeſt; and though I cannot diſtinguiſh by any particular name which is beſt for uſe, yet this may be depended on—that *that* is moſt ſuitable for the purpoſe which infuſes itſelf moſt in the water, and makes a lather of the ſtrongeſt conſiſtence, and ſuch as will ſupport itſelf longeſt after the action of the hand ceaſes that made it: And I believe that all other diſtinctions of ſope are chiefly on account of their odoriferous qualities; and, with reſpect to theſe, the naſal organ muſt be the arbitrator.

As

As lather is the proper vehicle of the beard, the more copiouſly it is applied, the leſs painful the operation will be; for it is by lather that the taſk of the razor is eaſed, and the pain the face ſometimes ſuffers rendered ſupportable, even with the tendereſt ſkins, and with others ſcarcely felt at all.

In raiſing a lather with the hand, a ſmall quantity of water is beſt, and the longer the action endures, the more the air will be expelled from the globules; thus the lather becomes more impregnated with the ſope, and by its cloſeneſs aſſumes the appearance of a thick foam, rather than of a lather; in this ſtate it ſhould be applied to the face, in as large a portion as poſſible; for it muſt always be remembered, that it is the thickneſs and quantity of the lather which promotes eaſe in the operation

of

of ſhaving. Previous, however, to applying the lather, I would recommend waſhing the face thoroughly with warm water and ſope, and wiping it quite dry; thus any little particles of duſt, that imperceptibly ſettle in the beard, and which cannot fail to dull the edge of a razor, are removed; the hair is ſoftened, and the ſkin in ſome meaſure rendered inſenſible of the ſciſſure which is to follow. Theſe directions will be equally important, whether the lather is adminiſtered with the hand or by the bruſh.

CHAP. III.

Of Razor Straps, and the Method of uſing them.

AFTER what has been ſaid, nothing ſeems wanting, to complete the apparatus

tus for ſhaving, but the addition of a razor ſtrap: On this ſubject I rather chuſe to reaſon than direct; and therefore ſhall be ſatisfied in giving a few intimations of what ſhould be avoided, without particularizing any one ſort, as intitled to a preference; and I hope by this I ſhall eſcape being ſuſpected, by my brethren of the trade, of inſinuating the excellencies of thoſe I make myſelf above all others.

Amidſt the vaſt variety of this commodity, it can hardly be ſuppoſed but that there is a difference in point of value; yet among ſo many geniuſes, who have bent their purſuits in the diſcovery of a noſtrum for quickening the edge of a razor, it would require more than the portion of one man's underſtanding, in deciding to whom the preference is due; and, as this ſtudy is

become

become ſo general, as to engage the attention of men of all profeſſions, I apprehend we ſhall ſcarcely ever ſurvive the revolution of a moon, without being abſorbed in wonder at ſome new emerged philoſopher, on account of his intereſting diſcoveries in this ſcience: and, in reſpect to a knowledge that generates ſo faſt, it is beſt to ſuſpend our judgments concerning the merits of thoſe whoſe purſuits are devoted to it, leſt, at the termination of every month, we ſhould diſcover as much reaſon to reſign our opinion, as we did before to embrace it.

I apprehend the reaſon, why this knowledge increaſes ſo much faſter than any other, is, that the ſtudy of it is connected with almoſt every ſort of buſineſs alike; inſomuch that, as yet, it is not clearly decided, whether the art of hair-weaving, the myſtery of mop-making, the manufacturing of cabinets, or the making

making of waſh-balls, conveys the greateſt degree of intuitive knowledge, in this dark ſcience.

It was not my intention to ſatyrize on this occaſion; but the ſubject ſeemed ſo aptly adapted for it, that I was led to it, in a manner, without my own conſent; and this I hope will excuſe me to the reader, for the liberty I have taken with his time.

I cannot forbear reflecting, with ſome degree of concern, on the ſupineneſs of the razor-makers in general; who have tamely yielded up a branch of buſineſs, which apparently belonged to them, to the management of every idle profeſſor: nothing can be more reaſonable to ſuppoſe, than that they, who are actually the makers of razors, are thoſe who ought to be, and are, beſt informed of

what is moſt beneficial to their edges: and I make no doubt, but a proper exertion in the trade, reſpecting this article, would very ſoon be countenanced by the favour of the public.

If the compoſition with which a ſtrap is charged, be of too ſharp a quality, its nature approaches too near that of a hone, which, though it never fails to give a quick keen edge, ſeldom produces that ſmoothneſs and ſolidity, which are eſſential, not only to its cutting pleaſantly, but alſo to its duration; and hence we perceive the abſurdity of pulverizing diamonds on this account; it may be, however, that this ſort of compoſition is mentioned much oftener in the public prints, than its effects are perceived on leather; and I truſt the noſtrum-mongers will have ſenſe enough

to

to diſcern, that I herein appear more their advocate, than their cenſor.

It will require ſome caution, however, to avoid the other extreme; for if the ingredients be too obtuſe, and ineffectual, they will be equally improper; for, inſtead of quickening the edge, they will deprive it of any degree of ſharpneſs it might have had before; it being a maxim in this particular, commonly true, that what does no good to a razor, ſeldom fails to do it harm.

Next to the compoſition, the leather claims attention; this ſhould not be too rough, leſt it ſit in waves on the ſurface, and thereby act unequally on the edge; nor too compacted, leſt it forbid the admiſſion of ſuch a quantity of the ingredients, as is neceſſary to meliorate its nature.

Under an idea, that uniting the ſtrap by means of glue occaſioned too great a degree of tenſion in the leather, I have lately adopted another method; the advantages of which I forbear to enlarge upon, on account of the condition under which I engaged to treat the ſubject, as mentioned in the beginning of this chapter.

In ſtrapping a razor, it is neceſſary to obſerve, that the thick or hind part bears upon the leather at the ſame time the edge does; for if the back is raiſed, the hand loſes its only guide; in which caſe it could not fail of receiving ſome injury; but if the razor is applied flat, and the ſtrap a proper one, ten or twelve ſtrokes, on each ſide the blade, will be ſufficient to give the edge its neceſſary refreſhment.

I have

I have always given directions to draw the razor downwards, from the termination of the edge to the point; having experienced that this is the moſt ſteady manner the hand can act in; and it is an obſervation pretty well eſtabliſhed, that any thing may be drawn to a much greater degree of exactneſs, than it can be ſhoved; and in the preſent caſe, was a razor to be puſhed upwards along the ſtrap, that is, from the point to the termination of the edge, there would be ſome danger of its turning on the rivet, and cutting both the leather and the fingers; to be as ſecure as poſſible in this reſpect, it will be well to place the hold juſt above the rivet, graſping at the ſame time the handle, and that part of the blade which iſſues from it.

The manner in which a proper ſtrap acts upon a razor muſt neceſſarily form

an edge moſt ſuitable for the purpoſe, as it neither wears it ſo faſt as the hone, or confines its effects entirely to a flat; by the gentle manner in which it operates, and being in ſome meaſure yielding to preſſure, it cannot leave that roughneſs upon the edge, which the hone, on account of its quickneſs, and the ſolidity of its ſurface, is commonly found to produce.

CHAP IV.

Of applying a Razor.

HAVING treated on every article neceſſary to complete the equipage, and given directions for ſtrapping a razor, I am now naturally led to ſpeak of the manner in which its application may receive the greateſt aſſiſtance.

Nothing is more evident, than that the ſame inſtrument, in different hands, will

will vary conſiderably in its performance; and, whatever other reaſons may be aſſigned for this difference, I am inclined to believe that miſmanagement is moſt commonly the cauſe. As handineſs cannot be conſidered as a concomitant of mental perfection, (the wiſeſt men being often deficient in it) ſo it ſhould not give any one offence, to ſuppoſe him wanting in this reſpect; eſpecially as the remedy in the preſent caſe will require nothing more than the exerciſe of his own conſideration; which was neglected, perhaps, from no other idea, than that of the inſignificancy of the ſubject.

The direction in which a razor ſhould be applied, is the ſame as with all other inſtruments intended to cut: for example; if it be conſidered in what manner a knife will beſt effect

its purpoſe with a ſtick, we ſhall find it will be by directing the edge exactly in a line with the back; this is equally neceſſary to obſerve, whether the intention be to go deep, or cut ſuperficially: thus, if the rind or bark only is to be taken off, the knife in that caſe ſhould act almoſt flat; for if the back was raiſed too much, one of theſe inconveniencies would happen, either the bark would be ſcraped off, by a tranſverſe ſtroke of the knife, or, by purſuing the firſt rule, of letting the back follow in a line with the edge, the inciſion would be much too deep for what was intended to be cut. In like manner, with reſpect to a razor, if it be conducted too flat, it will not attack the hair where it is moſt capable of reſiſtance, which is at the root; and therefore it evades the edge, by bending to it; and, by this method, it perhaps will be neceſſary to carry the razor over

the

the ſame part ſeveral times, to take off that quantity of hair, which, admitting the inſtrument had been properly directed, would have been better done by a ſingle ſtroke.

With regard to the other extreme; if the back of the razor be too much elevated, and yet directed in a line with the edge, it will not in that caſe appear intended ſo much to cut the hair, as the face; which will prove the worſt evil of the two; as I apprehend it will be thought better to leave ſome hair on the chin, than remove it at the expence of ſome fleſh.

If, though, the razor be held nearly perpendicular, yet at the ſame time the edge and back do not act in a line, the danger then of cutting the ſkin will be as little to be apprehended, as the probability

bability of ſhaving clean, or without pain; the razor acting only as a ſcraper; in which caſe, it can no leſs fail to fret the ſkin, than to deſtroy its own edge.

The man who attempts to write on a ſubject not eaſily deſcribable, ſtands a pretty fair chance of ſatisfying his reader leſs than himſelf; for, all matters having been ſufficiently digeſted in his conſideration, any thing almoſt ſerves for a repreſentation of his own ideas; but the reader, to whom the ſubject is new, ſtands in need of much more aſſiſtance, to have it rendered intelligible: I fear, therefore, what I have ſaid in this chapter will not be ſo well underſtood as I wiſh it to be; I ſhall endeavour therefore to add ſome familiar inſtances, which I hope will explain my meaning, when I ſpeak of the back acting in a line with the edge.

In

In the action of erasing, it must be perceived, that the edge crosses the paper, from right to left, while the back of the knife is held perpendicular; in this business the back has the same motion as the edge, but may (as I conceive) more properly be said to go with the edge, than to follow it; and this must be the case when any instrument acts as a scraper; but where the edge is directed for the purpose of incision, it will be found that the back rather follows than accompanies the edge, (if I may be allowed the expression); and whether the cut be deep or superficial, the case will be the same; for the back always follows in a line with the edge, and all the difference lies in the direction in which the instrument is conducted.

It is generally allowed, that the finest termination steel will admit of, when examined

examined by a ſhortened focus, appears to be nothing more than a ragged aſſemblage of diſunited particles; or, in other words, that the niceſt edge, which can be formed by art, is no other than a ſaw; this being the caſe, it becomes neceſſary, in order to afford its teeth the full power of action, to direct the razor either upwards or downwards in ſhaving; this conſideration will have an increaſe of force, when we reflect on the action of a ſaw, whoſe teeth, though preſſed on any ligneous ſubſtance, will do very little towards its ſeparation; but, immediately upon being puſhed forwards, make their way.

And thus a razor, if held perpendicular, may be moderately preſſed upon the hand, without much fear of cutting; but if the leaſt aſſiſtance be given it to act, if it be drawn or forwarded, in how-

ever

ever ſmall a degree, it will directly penetrate the fleſh; hence it will appear, that it is neceſſary to direct the razor either upwards or the contrary, in order to afford the edge an opportunity of acting to advantage.

Having mentioned the inconveniences ariſing from an injudicious method of conducting the razor, it now becomes neceſſary to point out in what manner its application may be moſt certain of ſucceſs; and ſince it appears that to hold it too flat, or too elevated, is improper for the purpoſe, I muſt recommend a medium between the two extremes, which I am perſuaded will always be moſt eligible; for then the edge need not attack ſideways as a ſcraper, for fear of wounding the face, or frontways ſo horizontally as to miſs the root of the beard.

I will

I will conclude this chapter by obſerving, that it is always beſt, (where the tenderneſs of the ſkin does not forbid it,) to let the razor meet the hair, or, as moſt commonly expreſſed, to ſhave againſt the grain; for there is a particularity obſervable with reſpect to the beard, that were it is moſt capable of reſiſtance it is always eaſieſt overcome; its oppoſition ſerving no other purpoſe, than that of facilitating its removal; it is on this account that the part, over which the razor is to paſs, ſhould be ſtretched moderately tight, by a convenient diſpoſition of the fingers; which, in a manner fixing the hair, gives the razor the beſt opportunity of acting to advantage.

CHAP.

CHAP. V.

Containing a Deſcription of the Advantages attending the Convexity of the new invented Penknives.

BEING the inventor of a particular ſort of penknife, it may perhaps be expected I ſhould enlarge a little on the ſubject. I am happy in having it in my power to give the public my reaſons for recommending my invention, which I now can attempt with a degree of confidence, which nothing but their generous and general approbation could have occaſioned.

Previous to the formation of any cutting inſtrument, the mechanic ſhould always conſider the nature of the inciſion it is intended to make, and the quality of the ſubſtance it is to cut; this will naturally direct him in ſhaping it

to

to advantage, and giving it that degree of hardneſs requiſite for the buſineſs it is to perform. I hope it will be permitted me to ſay, that theſe conſiderations actuated with me, in reſpect to the inſtrument now in queſtion.

It appeared that the penknife was to enter one half of a tube; and that from the firſt entrance (I now ſpeak of penknives of the old form) there appeared ſome difficulty in preventing the inciſion from going too far, or cauſing it to proceed in a right direction: I diſcovered that this difficulty aroſe entirely from the great diſtance at which the back was placed from the edge; which, for the moſt part, was unavoidably introduced too far into the quill, before it commenced to act as a lever; it muſt be acknowledged, that this inconvenience was not ſo great where the blade was

very

very narrow; but ſtill there remained a part of it, which muſt neceſſarily always exiſt more or leſs, according to the breadth of the blade, while both ſides formed an equal concavity; hence I conceived that if that part of the blade, which operated next the quill, had a ſmall degree of convexity, ſuch as might facilitate its ſhaping the pen, without occaſioning too great a degree of thickneſs about the edge, the inſtrument could not fail of receiving ſome advantages; and, having carried this thought into execution, I prevailed on ſome eminent penmen to afford my knives a trial: They greatly approved the invention, and then (but not before) I judged myſelf at liberty to offer them to the public.

Penknives of this form are not only more convenient, but are alſo more

durable than others; for the convexity ſerving as a fulcrum to the edge, affords it relief the inſtant it enters the quill; and, ſuſtaining it in cutting, prevents any injury happening by a forced inciſion; which muſt unaviodably be the caſe with all knives, in which the part that ſhould ſupport the edge has not an equal proximity.

I flatter myſelf, that this advantage, (had they no other) would entitle them to a preference; but I may further add, that the convexity ſo far aſſiſts the direction, which the inſtrument ſhould take in forming a pen, that many are now able to perform this buſineſs for themſeves, who never were with knives of the old form: this is a fact I have heard repeatedly aſſerted, and therefore hope it may here be allowed a place.

I never

I never could diſcover but one objection with which the convexity was chargeable; and as that ariſes entirely from a miſtake in the manner of applying it on the hone, I ſhall here attempt to give a few directions for ſetting them, which I flatter myſelf will obviate every difficulty.

It muſt be remembered, that penknives ſhould never be ſet flat, as by that method an edge would be formed much too tender for the ſubſtance with which it is to engage: thoſe who are not acquainted with this, and who therefore apply the whole ſurface of the blade in ſetting, may naturally be under ſome difficulty reſpecting the convexity; but if they will apply the blade with the back a little raiſed, in order to extend the angles of the edge, they will find that, even in this, the convexity has its

uſe; for, if it be properly formed, it will ſerve for the rule of elevation in ſetting; as raiſing the back, juſt ſo much as will prevent the hone from marking the convex ſurface, will form an edge of due proportioned angles: let it be remembered too, that *that* ſide of the blade, which has not the convexity, muſt be applied in the ſame direction; hence it will be perceived, that the manner of ſetting convex knives, is the ſame as others, for penknives of any make ſhould not be applied flat on the hone.

INSTRUC-

INSTRUCTIONS AT LARGE

FOR

MAKING AND REPAIRING

PENS.

INTRODUCTION.

IT ſometimes happens in life, that certain matters, neceſſary for almoſt every one to know, are by ſome ſtrange, yet cuſtomary inattention, left untaught; this is particularly exemplified, in reſpect to the buſineſs of pen-making; and thus we often find the young ſtudent leaves the ſeminary, with the reputation of being a fine writer; who the week after, when he makes uſe of the pens he finds at home, or of ſuch as may be purchaſed ready made, greatly diſappoints his friends by his performance.

The young gentleman perceives the occaſion, and now regrets that he had not been taught to make ſuch pens as

his inſtructor uſed to provide: attempts are made to remove the deficiency; a penknife and quills are procured; and, poſſeſſed of nothing more than the general idea of the form of a pen, he ſets about the work; but, as there are many nice and minute circumſtances which conſtitute the perfection of a pen, it cannot appear very ſurpriſing, if the attempt is not attended with ſucceſs; nor ſhould it ſeem wonderful, conſidering the age at which theſe attempts are made, if the youth, finding the taſk more difficult than he had figured it, ſhould weary in the proceeding; and, thus diſguſted, be ever after ſatisfied with bungling performances; which with a good pen, in an equal ſpace of time, might always have appeared clear, diſtinct and elegant; and I fancy this conſideration will ſupply the general reaſon, why ſo many more are able to

uſe

uſe a pen, than are capable of making one.

Thoſe, who have minds of an ingenious mechanical turn, will never be long without the power of providing themſelves with good pens, even without any directions for the purpoſe; but theſe qualifications fall not very abundantly on human beings; and I truſt this conſideration alone will ſuggeſt a ſufficient neceſſity for an attempt to treat on the ſubject; more eſpecially as I believe it will be found, that few writers have ſo far explained the art of pen-making, as to render it very intelligible, or intereſting.

If I ſhould be fortunate enough to make it appear, that every one, who poſſeſſes a tolerable good eye-ſight, may infallibly become a good pen-maker,

I hope

I hope none will be diſcouraged from the buſineſs, by diſcovering a little difficulty in their firſt endeavours. I have inſtructed many young ladies, who at firſt entertained an idea of the difficulty of attainment; who, notwithſtanding, are now capable of making pens for the moſt capital prize-writing; and whoſe parents have obtained a very ſingular conveniency, in being eaſily provided with an inſtrument, which the natural decay of optics had rendered it difficult to produce for themſelves.

There are few young ladies, whoſe credulity I may be favoured with in this inſtance, who can require a greater incentive to their endeavours; for it cannot be imagined they can be capable of feeling a more exquiſite degree of pleaſure, than in finding the perfection of *their* faculties able to ſupply a remedy

for

for the decay, which time muſt eventually occaſion in thoſe of a revered parent; and I need not ſuggeſt to their conſiderations, what a particular joy it muſt afford a fond father or mother, in finding the decay of nature alleviated by the dear hand of a much-loved child.

I have taken the liberty to introduce the ladies on this ſubject, and am happy in the opportunity; for it ever appeared to me a circumſtance of regret, that pen-making was conſidered as a qualification unneceſſary in female education; and I hope what I ſhall ſay upon the occaſion will give birth to an idea, that the ability of *uſing*, and knowledge of *making* a pen, ſhould always go together; and that there appears as much inconſiſtency in ſuppoſing they might be ſeparate, as that the man who cuts the graſs need not be able to whet his ſcithe.

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The inconveniences arifing to every one who ufes a pen, and is not capable of repairing it, muft have been experienced in all families; neceffary information is often with-held, and an intereffting correfpondence delayed. I once knew that a gentle woman omitted fending her fifter a letter for one whole month, for no other reafon, than becaufe her coufin, who ufed to make her pens, happened to be at Bath.

From a great variety of inftances it will appear, that all, who are capable of writing, fhould have it in their power to accomodate themfelves with pens; and when it is confidered with what dedegree of eafe every perfon may acquire this ability, and how little a portion of time is neceffary for the work, it will become a circumftance of great furprife, that it fhould hitherto have been thought

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a buſineſs ſuited only to ſchool-maſters or clerks; and will, I believe, ſupport the idea before advanced, viz. that the directions, already given upon the ſubject, have not been ſufficiently explicit to engage the attention of thoſe who have peruſed them.

I am aware, that although there would be no difficulty in giving oral directions relative to the buſineſs of pen-making, where the pupil, being preſent, could have the inſtructions enforced by actual example, and be readily ſhewn how the fingers ſhould be diſpoſed, and the knife applied; yet there muſt remain ſome difficulty in being underſtood in writing; for which I muſt in ſome meaſure rely on the conception of my reader.

I flatter myſelf, however, with the hope of being able to make myſelf intel-

ligible

ligible to many; and *those*, I make no doubt, will explain the directions to others of leſs-ready comprehenſion; thus I form an expectation, that the æra will arrive, when every ſtudent, of the age of twelve years, will be able to provide himſelf with a pen, adapted to the fineſt writing; for, when an emulation takes place in juvenile minds, (which is not unlikely on the preſent occaſion,) the progreſs to perfection is ever rapid.

To be well underſtood in my directions, it is neceſſary that the reader ſhould be in no doubt reſpecting the terms and deſcription, which muſt occur; for, if he ſhould be at a loſs in any of the parts deſcribed, ſome ambiguity would appear, and conſequently ſome miſtakes might ariſe. I ſhall proceed therefore with as much method and circumſpection as poſſible; and hope his attention

will

will ſupply the reſt. But, before I begin with the pen, it may not be unapplicable to ſay a few words reſpecting the quill, in the choice of which, ſome knowledge is required.

The beſt quills are taken from the wings of a gooſe; and of theſe, the beſt are procured from the bird when at its full growth; the quills becoming larger and ſtronger in proportion to its age. Each wing contains eleven quills, but there are but three in each which are in great eſteem; theſe are the ſecond, third and fourth quills, from the external part of the wing; for whoever examines attentively, will be convinced that the firſt is neither ſo thick in its ſubſtance, or large in its dimenſions, as the other three; and will alſo perceive, that the fifth ranks in ſome degree of inferiority.

Before

Before a quill is fit for the penknife, it ſhould undergo a little proceſs, which is called *dutching*; this operation is thus performed, viz. the quill is for an inſtant put in a convenient part of the fire, where the coals have been ſeparated for the purpoſe; and, having received a ſufficient degree of heat to rarify the internal confined air, and parch up the external film, is ſuddenly extracted, and drawn over a ſmall iron plate, reſting upon the knee of the perſon employed in this buſineſs, under the ſmart preſſure of a blunt-edged knife. The natural moiſture of the quill is thus diminiſhed, and the circumferent pellicle deſtroyed; this buſineſs is always ſo managed, as to happen while the quill retains ſuch a ſtate of heat as enables it to recover the original form.

Perhaps quills, that have been a long time extracted from the wing, may not

ſo

ſo immediately in need of dutching; we meet with very few, however, that will ſplit clean, or look tranſparent, unleſs it be thoſe which have felt the effects of fire; and here let it be rememberd, that the tranſparency of the quill, and its reſiſtance to preſſure, are circumſtances which ſhould guide our choice; for if the eye is not convinced of its clearneſs, and the touch of its hardneſs, it will be in vain to expect the knife can produce a fine pen.*

* Here it is neceſſary to obſerve, that a certain degree of ſubſtance and thickneſs are neceſſary to the perfection of a pen; and it will be found, where theſe are wanting to ſupport the quill in its proper ſtate after ſplitting, that the ſlit will be always apt to croſs itſelf; in which caſe it is beſt to commit it to the fire; for the knife can never make a tolerable pen of ſuch an intolerable quill.

INSTRUCTIONS, &c.

THAT part of the quill which, in its original ſtate, lay towards the body of the gooſe, is rather hollow, and the other ſide conſequently riſing, or prominent; this very naturally directs me to diſtinguiſh the one by calling it the inſide, and the other the outſide of the quill.

The firſt operation, in the art of pen-making, is to ſcrape off (with the back of the knife) any ſort of roughneſs, (if

any appear) on the back or outſide of the quill, where the ſlit is intended to be made; in doing this, care muſt be taken to diminiſh the natural thickneſs of the tube as little as poſſible; then make a tranſverſe ſloping cut at the end of the quill on the ſame ſide, taking off juſt ſo much as ſerved for the root of the quill, which in general may be diſcovered by a little opaque whiteneſs, viſible at its termination; then, turning the quill, make a ſomewhat deeper cut at the end on the inſide; in theſe two ſtrokes of the knife, it is eſſentially neceſſary to obſerve, that the firſt cut is given exactly parallel with the back, or outſide; and the ſecond equally even with the inſide of the quill.

The ſecond cutting, being more capacious than the firſt, prepares the quill for what is next to follow, and prevents

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the knife from entering at the ſame time both the upper and under ſurface; this will be better underſtood, when it is conſidered that the next operation is gently to force the edge a little way up, exactly in the middle of the firſt inciſion; this muſt be done by bringing the fingers of both hands in ſuch cloſe contact, as may check the knife from too great an entrance; the diviſion which is made being only intended to aſſiſt the direction of the ſlit, which the peg of the knife is next to make; but, before the peg is applied, the fingers of the left hand ſhould be put in ſuch a ſituation as to prevent the quill from ſplitting too far; with this view, they ſhould be brought pretty near the end of the quill, and the thumb particularly ſo diſpoſed upon the back of it, as to preſs principally on that part, where it is intended the ſlit ſhould

terminate; this being properly attended to, and the peg of the knife being forced by gentle degrees, the ſlit will ſeldom exceed the limit intended.

This operation paſt, the artiſt ſhould examine if the ſlit is made perfectly clean, and free from any croſs teeth or opening,* for on this depends the poſſibility of its becoming a perfect pen; if the ſlit appears very clean, and cloſely united, the next operation is to reduce the ſides, and then proceed to ſhape them.

In cutting down the ſides, the knife muſt begin a little above the ſlit; but, in

* It is ſometimes found that on ſplitting a quill the ſlit takes a very crooked direction; this is not quite ſo eaſy to manage as when ſtraight; if, however, the ſlit is clean and cloſe, the pen may not be the worſe; in this caſe the ſides muſt be cut away, ſo as to render the diviſion as nearly as may be in the middle between the two ſides.

order

order to render the buſineſs more convenient, a pretty bold ſtoke may be cut on the inſide or belly of the quill, by which the knife will be more at liberty to proceed with the ſides. That part of the pen, from which the great cut is taken, is often termed the cradle, and the two corners, which ariſe a little above the ſlit, are called the ſhoulders of the pen.

In forming the cradle, the knife muſt not be ſuffered to ſink in too far, as thereby the elegance of its form would be deſtroyed, and the ſtrength of the little fabric diminiſhed; for the ſame reaſon alſo, the inciſion ſhould not be too long. The ſides of the pen, from the ſhoulders to the nib, nearly reſemble the form of a lady's ſtays; and in the ſhaping of this part (eſpecially in the finiſhing ſtrokes,) the ſame attention

muſt be paid, as was recommended reſpecting the back and front inciſions; here the utmoſt care muſt be obſerved, (particularly towards the nib,) that the knife acts in an exact parallel with the feather, or ſide parts of the quill; if this is not very minutely attended to, it will always be found, that the ſpace left between the knife and the ſlit will not be equal on both ſides, and that, conſequently, the inner or outer ſide muſt be weaker than the other; the ſame inaccuracy may alſo be ſuſpected on the other ſide of the ſlit; in which caſe the imperfections become ſo multiplied, as render it impoſſible the pen ſhould be capable of a fine ſtroke.

There is ſo great a degree of preciſion required in the art of pen-making, that I would always recommend the uſe of a magnifying glaſs; for, though I know

know a very good pen may be made by the natural eye, yet I am convinced a much better may be obtained by the optician's help. Elegance of form, and exact ſymmetry of ſhape, ſhould not be conſidered under the mere idea of beauty in a pen, for they conſtitute its real merit, inſomuch, that I will venture to aſſert, that no very good pen was ever found where theſe were wanting.

In reducing the ſides, and bringing the pen to a point, care muſt be taken not to hollow any part, but to diminiſh gradually to the end, obſerving that the extreme point muſt always deſcribe the greateſt degree of the narrowneſs. When the ſides are cut down according to the directions before given, the ſlit reduced to the length of one quarter of an inch, and each ſide of the ſlit brought to a ſharp ending, the pen muſt then be

placed

placed between the fore and ſecond fingers of the left hand, and the under part of the nib be brought to reſt on the thumb nail of the ſame; this is done in order to afford the right hand a convenient opportunity of giving the finiſhing ſtrokes to the nib; the end of the nib being brought to lie flat on the thumb nail, the knife muſt then ſhave off a ſmall piece from the outer ſurface, beginning at about one ſixteenth part of an inch from the point, and cut with a ſlope rather inclined downwards towards the end, obſerving that the knife in the ſame cut acts equally on each ſide of the ſlit; this is called thinning the nib, and is of very eſſential concern, ſince it affords the pen that degree of elaſticity, which enables it to perform the moſt beautiful writing.

Thus the point being thinned in ſuch a manner, as to make its extremity the

thinneſt

thinneſt part, the next operation is to nib the pen ; which is cutting off both ends of the ſlit at one ſtroke ; by doing this a certain neceſſary degree of breadth is given to the pen, which before was reduced to a ſharp point ; this ſtroke of the knife, being given pretty ſharply, will leave the point perfectly clean, and without any jaggedneſs.

In order to perform this operation, it will be neceſſary to place the thumb of the right hand under that of the left ; which will afford it ſtrengh and ſteadineſs for the action of nibbing, and enable it to reſiſt the preſſure of the knife ; in giving this ſtroke to the pen, the knife muſt act nearly perpendicular, that is, the back of the knife ſhould be almoſt in an upright direction from the edge ; I ſay almoſt, for it need not be entirely ſo, a very ſlight inclination

of

of the back of the knife, towards the feather end of the quill, being beſt for producing that degree of ſharpneſs in the under edges of the pen, which is ever of conſequence to the beauty and clearneſs of writing. Thus, all circumſtances prepared, the knife muſt be brought forward in ſuch a manner, as that in making the ſtroke it may appear to be in a direct croſs line with the pen; the reader will readily preceive, if this was not attended to, one ſide of the ſlit would protrude; and where one ſide exceeded the length of the other, in however ſmall a degree, the defect could not fail to appear, by the inferior ſort of writing which would be produced.

All theſe directions having been obſerved, we will ſuppoſe the pen perfectly formed; but, in order to be quite certain,

tain, it will not be amiſs to take a review of the work, before it meets the ink. Examine firſt, if the cut which forms the cradle deſcends with a gentle ſlope towards the ſhoulders, and that neither ſide is higher than the other; next examine, if each ſhoulder is at an exact and equal diſtance from the point of the pen; and be well aſſured that no part of the ſides, from the ſhoulders to the extreme of the nib, deſcribe any hollow, or ſhow that the knife has cut deeper in ſome parts than in others; but that it appears to be a regular ſtraight (but by no means a hollowed) ſlope; obſerve too, that in forming this ſlope, the knife has been ſo nicely conducted, as to have cut in an exact parallel with the ſides or feathers of the quill, particularly near the point or nib, as otherwiſe it muſt have approached more to the ſlit on one ſide of

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the quill than on the other; in this caſe the ſides of the pen, which ſhould have been exactly equal, will be divided by croſs ſtrokes, and its ſtrength no where regular; then be aſſured that each ſide of the ſlit has an equal degree of breadth at the extremity of the nib, that the ſlope upon the back of the nib has been properly ſhaved off, and that the ſtroke given in nibbing has been exactly in a croſs line, ſo that one ſide of the ſlit does not appear to be in the ſmalleſt degree longer than the other.

Finding all right in theſe reſpects, the next thing to be done, is, gently to preſs the nib a little inwards, with a ſlight action of the thumb and finger; this gives the ſlit a tendency to cloſe: Next, and laſtly, draw the pen through your lips; this will occaſion the ink to flow,

which

which otherwiſe would hang partially about the pen.

This is the laſt direction which can be given upon the ſubject; and now the pen, having had every aſſiſtance art can beſtow, is therefore in every reſpect fit for uſe. I ſhall now add a few words reſpecting the repairing of pens.

Thoſe who will condeſcend to make uſe of a magnifying glaſs, in the examination of a pen, will readily perceive, after what has been ſaid upon the ſubject, what it is which conſtitutes its great degree of excellence; they will diſcover, alſo, what it is that occaſions a pen to ſtand in need of frequent repair.

Although there are many parts of a pen which require attention in forming, it

it is confeſſedly only the internal edges (if I may ſo expreſs it) of the two nibs which come into action in writing; theſe, by conſtant friction with the paper, loſe their ſharpneſs, and become round and blunted; and, as this bluntneſs increaſes, we diſcover that the pen loſes its great degree of excellence, and begins (as it is termed) to write bruſhy.

In this diſcovery, we perceive what is neceſſary to be done in reſpect to its reſtoration, which is only to cut a very little from each ſide of the nib, juſt at the points, to ſhave off a ſmall part in the action of thinning the nib, and to give it again the croſs and almoſt perpendicular cut at the point.

By this treatment, we place the pen in the ſame degree of excellence it poſſeſſed before; and there is no other

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difference, except that the ſlit has been a little ſhortened; but this circumſtance cannot occaſion much alteration, the original ſlit being always made ſufficiently long, to admit of more than one repair.

Having, as I conceive, ſaid all that is requiſite on the ſubject of pen-making, I ſhall only add a few words, by way of encouragement to thoſe who may be inclined to follow my directions.

I know that pupils, who have been under my care, have at firſt found ſome trouble in managing the knife; and it often happened that they either cut too deep, or could not make the edge catch at all; but although I foreſee tha tevery one, upon a firſt acquaintance with the knife, will experience ſome difficulty, yet, as I am convinced, that habit and

perſeverance will ſoon ſurmount every obſtacle, I would not have them be diſcouraged in the attempt; and, as a further inducement to their purſuit, I can aſſure the reader, that the invention of convex penknives has greatly reduced the difficulties which formerly occured in the art of pen-making.

I have only now to remind my reader, that every different hand writing requires a pen differently formed. The dimenſions I have ſet forth are adapted to a common round hand; text would require the ſlit to be rather longer, and the nib ſomewhat broader; and on the contrary, for fine ſecretary, or a ſmall running hand, the ſlit ſhould be ſtill ſhorter, and the nib narrower.

But I ſubmit any further conſiderations on this ſubject to the ingenuity of

of writers; as no doubt can arise, but that the artist, who is once rendered capable of making a fine pen, will soon discover the proper means of suiting it to all the different hands now in use.

THE END.